

EVK-GT8230 User Manual

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Revision History

| Version | Date | Remarks |
|---------|------------|---|
| V1.0.0 | 2012-05-29 | Initial Version |
| V1.0.1 | 2013-01-04 | Update the doc`s name |
| V1.0.2 | 2013-01-30 | <ol style="list-style-type: none">1. Update EVK and product pictures .2. Add some notes during using mini PCIe.3. Add picture of handles socket connection.4. Delete the button of POWER_ON and POWER_OFF. |
| V2.0.0 | 2013-09-13 | Update the doc`s name. Add adapter. |

Applicability Table

| No. | Type | Note |
|-----|------|------------------------------|
| 1 | H330 | Concert with ADP-H330-xxx-yy |
| 2 | H350 | Concert with ADP-H350-xxx-yy |

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1 Preface

1.1 Scope

EVK-GT8230 is the developer board of Fibocom 3G module, it worked with corresponding adapter.

This Manual describes the developer board EVK-GT8230, ensures the users can quickly and conveniently develop wireless communications using Fibocom Module.

1.2 Developer Board Structure

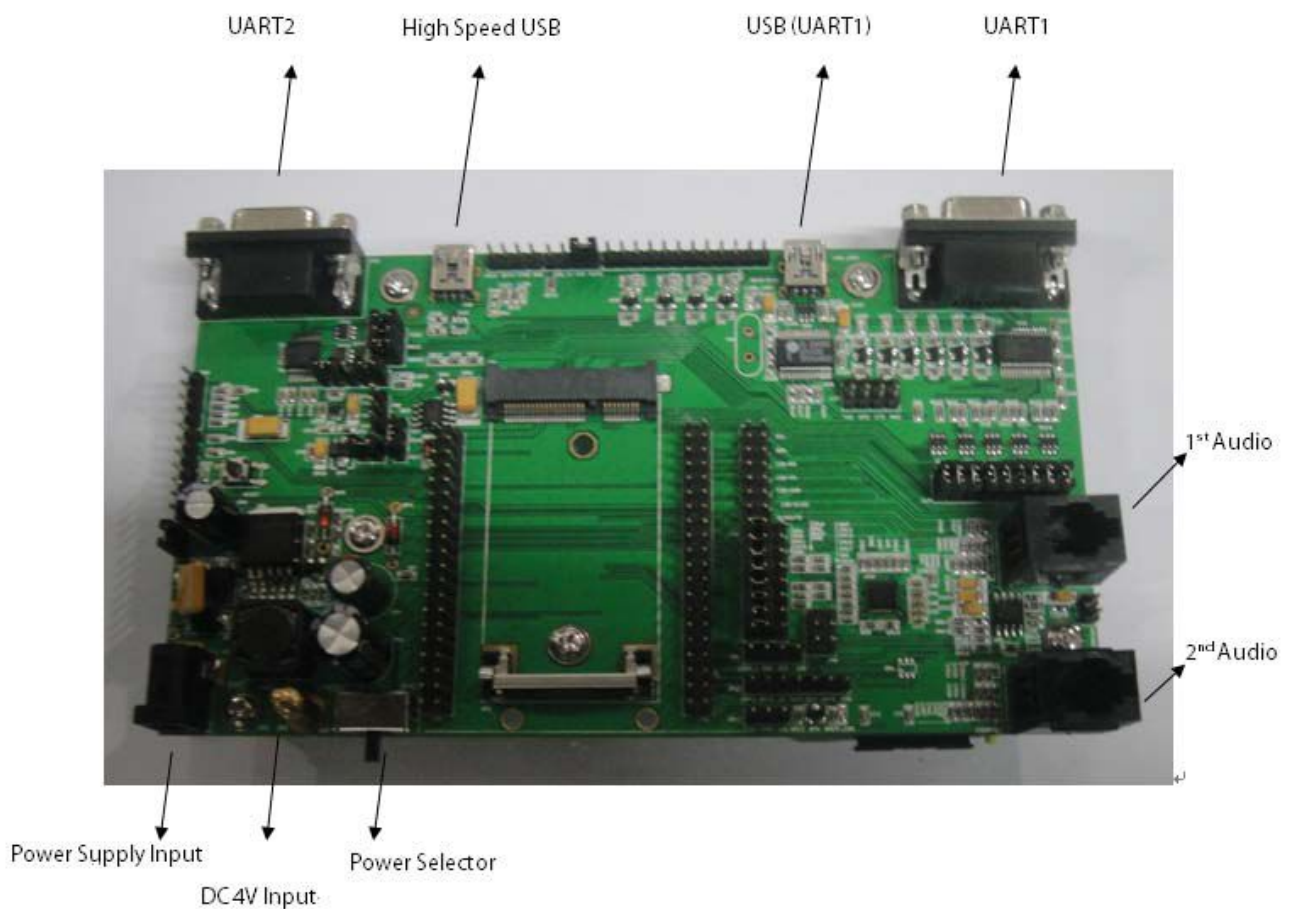


Figure 1-1 GT8230

1.3 Application Diagram

GT8230 mainly includes the four parts: each functional interface, button, test point and power supply.

The diagram as listed below:

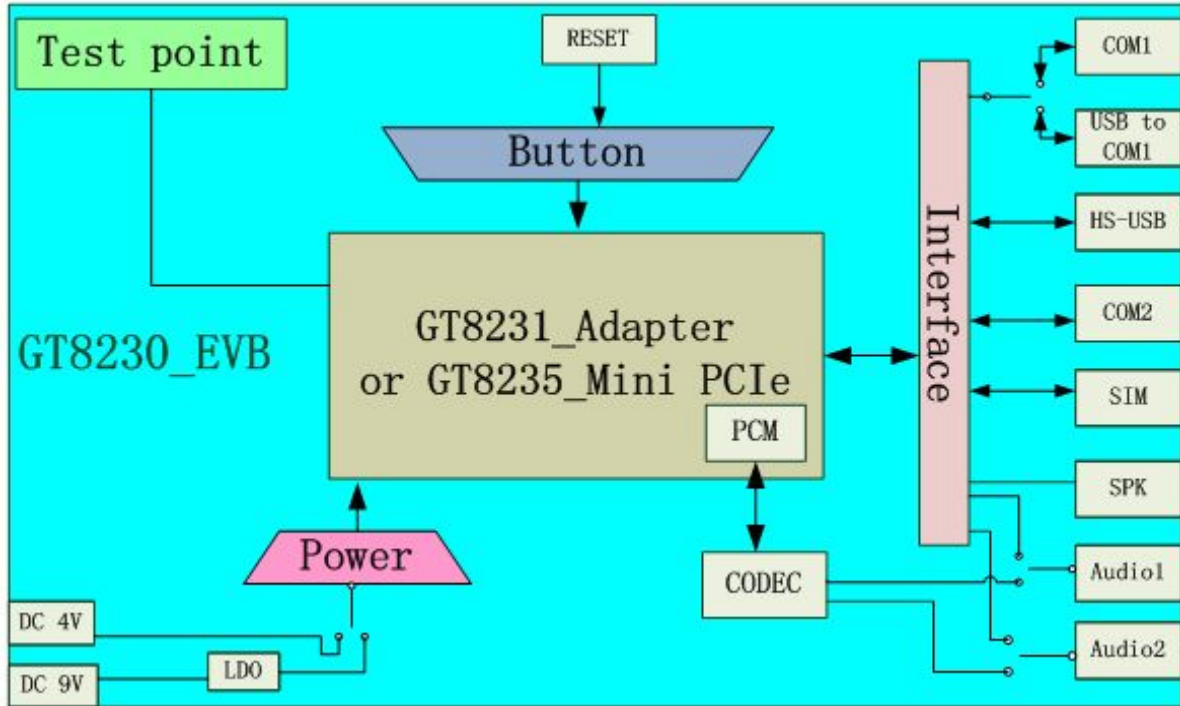


Figure 1-2 product diagram

Note : the Reset button is only for Mini PCIe, for Adapter is useless.

2 Function Description of EVB

This section describes the different functions of each block; take ADP-H330 (H330 Adapter) as an example.

2.1 Power Supply

This developer board supports two kinds of power supply inputs.

(1) Direct Power Supply

Directly connected with V40BAT (pin JP3) and GND (Pin JP2) to 4V

Note: For mini PCIe, use DC3.3V power supply

(2) External PSU

Supply option can be connected through the DC-DC adapter, supplying 9V through (JP1), then supply power to H330 Adapter through DC-DC conversion circuit on development board.

As shown in Figure 2-1:

- Selection of Direct Power Supply, set the power selector switch (SWP1) to the left.
- Selection of Power Adaptor, set the power selector switch (SWP1) to the Right.

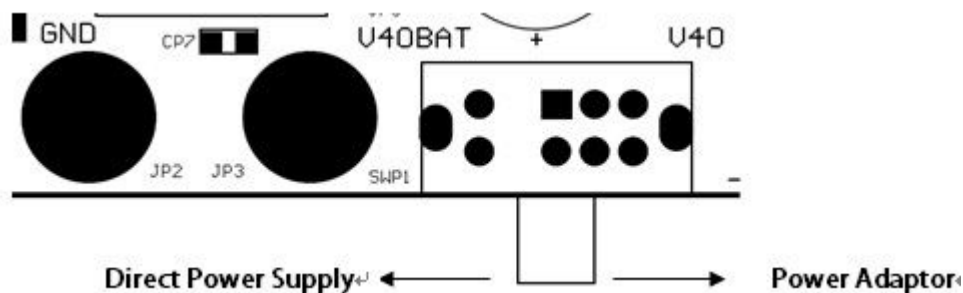


Figure 2-1 Power Switch

2.1.1 Direct Power Supply

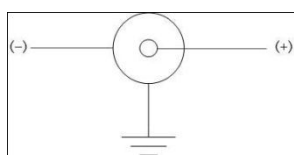
Direct Power Supply: The power supply is connected directly to the module, so the voltage range must comply with the H330 Specifications.

| Power Connector | Description |
|-------------------------|---|
| V40BAT(JP3) GND(JP2) | DC Power Supply Voltage Range: 3.3 V ~ 4.2 V Recommended Voltage: 4.0V Input Current: > 2.0A |

Note: Please use correct Voltage to avoid damage.

2.1.2 Power Adaptor

When an external power adaptor is plugged in, the developer board will use a DC-DC Buck circuit to convert to 4V supply and LV40 indicator will be ON.

| Power Connector | Description |
|---|---|
|  | Straight Insert Voltage Socket, $\Phi 2.5\text{mm}$; Input Voltage: 8V~15V; Input Power: $\geq 9\text{W}$. |

2.1.3 Power Supply Peripherals

There are two LDO chips (UP2 and UP3) on the developer board. 3.3V voltage generated after VBAT40 pass through UP2, 1.8V voltage generated after VDD33 pass through UP3, these two set of voltages support other IC, LED and circuit on the developer board.

| Jumper Switch | Description |
|---------------|--|
| JP4 | On/Off 3.3V voltage output |
| JP6 | On/Off LED indicator |
| JM5 | On/Off Enable LED Indicator for Power. |
| JM11 | Select Power Supply for CODEC inside the module; Jumper on Pin 1: VBAT connected with VSPK_M: power supplied by VBAT Jumper on Pin 3: VDD33 connected with VSPK_M: power supplied by VDD33 |
| JM12 | Supply power to VDD_MMC inside the module; 1V8 connected with VDD_MMC: power supplied by 1V8; VDD33 connected with VDD_MMC: power supplied by VDD33 |
| JA2 | Supply power to CODEC on the developer board; Jumper on Pin 1: VBAT connected with VSPK: power supplied by VBAT; Jumper on Pin 3: VDD33 connected with VSPK: power supplied by VDD33 |

Note: When you test the parameter of current, please unplug the above six jumpers. The tested current will be the current consumed by module only.

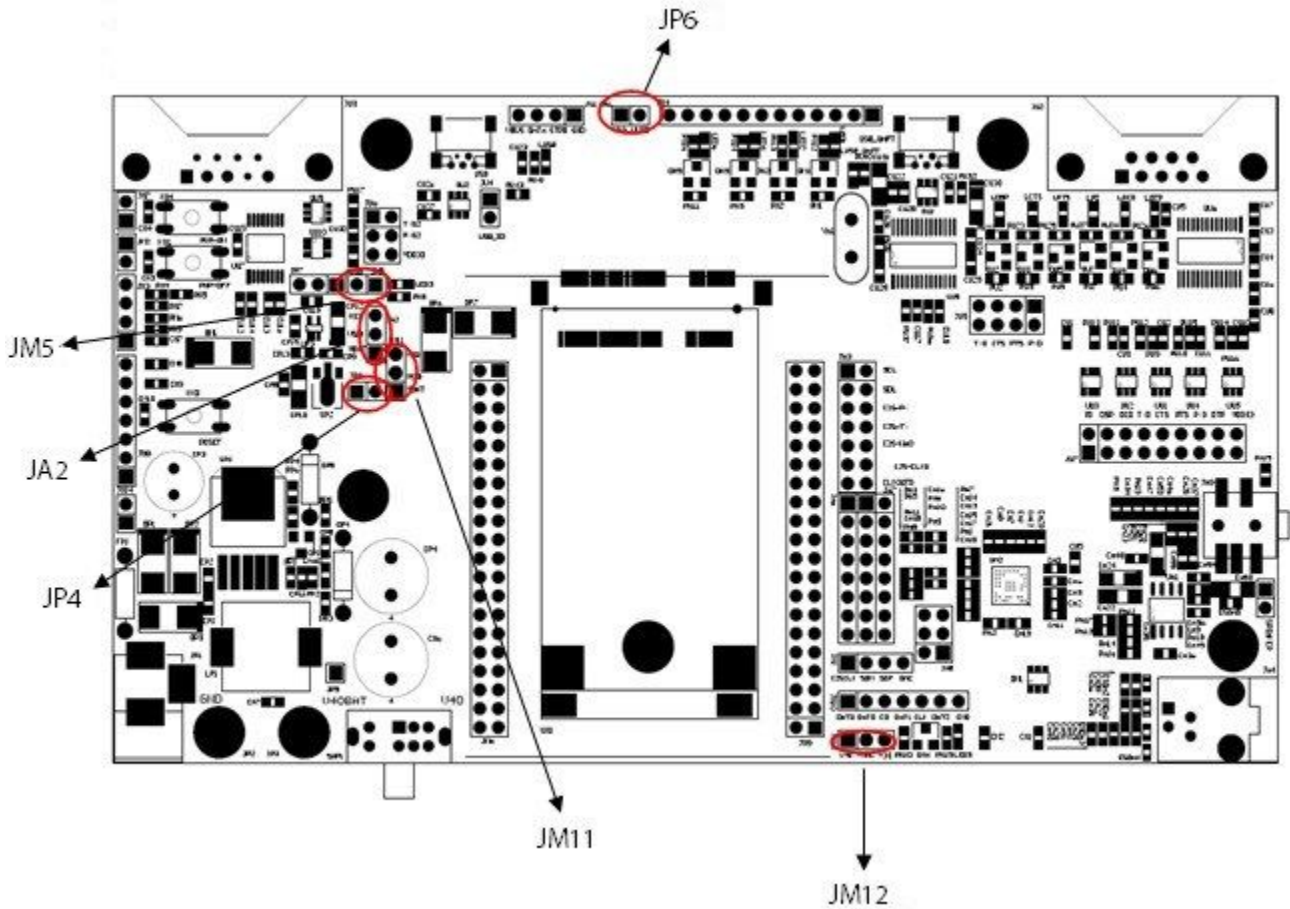


Figure 2-2 Jumpers Locations

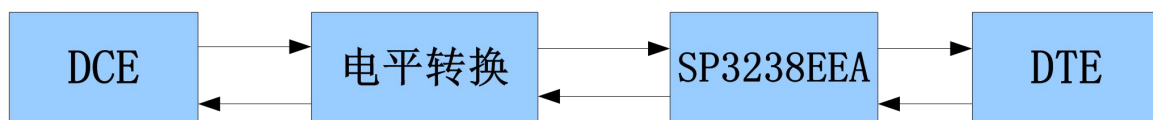
2.2 UART1 (COM)

UART1 is a full 8-line interface, there are six LED indicators (LRI/LDCD/LDSR/ DTR/LRTS/LCTS), used to display the corresponding pin logic level in the module, it can be directly connected to PC or other DTE equipment.

Developer board contains RS-232 Transceiver SP3238EEA inside.

PC and other DTE equipment can test all the functions of the module through this interface and AT Commands.

The following picture shows the connection of UART1:



| Jumper Switch | Description |
|---------------|---|
| JU7 | All 9 Jumpers In, Turn ON UART1 Signal connection |

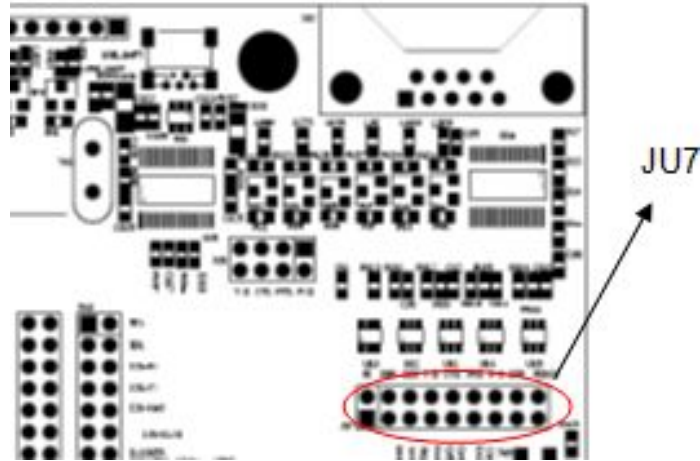


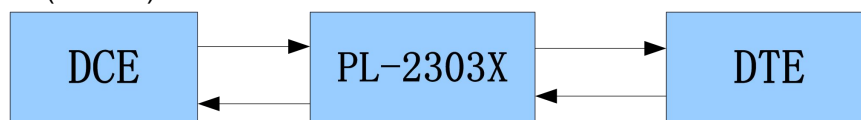
Figure 2-3 Jumpers Locations

Note: For mini PCIe, connect the mini USB cable to the high speed USB port of the developer board, in the meantime, unplug jumper switch JP7, otherwise, this port cannot be used.

2.3 UART1 (USB)

UART1 (USB) connector and UART1 connector are using the same internal UART interface inside the developer board, so they have the same functions and commands. The developer board contains a UART to USB converter chip (PL2303), it provides four lines (TXD/RXD/CTS/RTS) to UART interface of module after conversion, this USB connector is the mini USB connector, users can connect to the PC through switching cable (USB transfer to mini USB).

There is a LED indicator (LUSB-UART) next to the USB interface, used to display the connection between the interface and PC. If it is connected successfully, the light will on. The following picture shows the connection of USB (UART1):USB



| Jumper Switch | Description |
|---------------|--|
| JU9 | Turn on/off USB interface as communication interface |

Note:

- You cannot use (UART1) and UART1 interface at the same time, please switch between JU9 and JU7.
- Install corresponding driver USB to Serial port driver, , EVB use PL2303 interface chip) when use USB interface.
- Mini PCIe doesn't support this port.

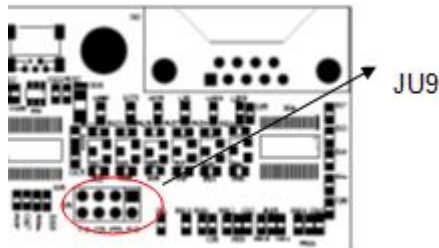
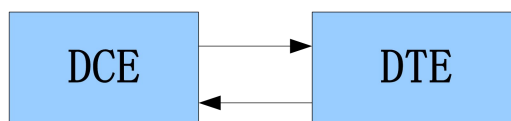


Figure 2-4 Jumpers Locations

2.4 USB Interface

The USB interface is a high-speed data transmission interface, a LED indicator (LUSB) used to display the connection between the interface and PC terminal. This USB interface is a mini USB interface, users can connect to the PC through switching cable (USB transfer to mini USB). If it is connected successfully, the light will on.

The following picture shows the connection of High Speed USB:



| Jumper Switch | Description |
|---------------|--------------------------|
| JU4 | for connecting to USB_ID |

Note: Install corresponding driver (driver for H330 module) when use USB interface.

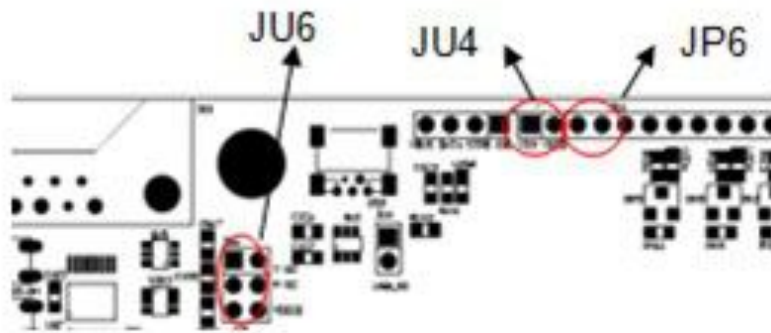
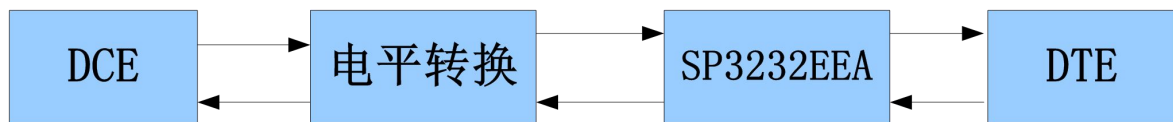


Figure 2-5 Jumpers Locations

2.5 UART2 (COM)

UART2 is a 2-lines interface (RXD/TXD) which can test the second UART of H330. It can be directly connected to PC or other DTE equipments. The following picture shows the communication process:



| Jumper Switch | Description |
|---------------|----------------------|
| JU6 | Enable/disable UART2 |

Note:

For mini PCIe, connect the mini USB cable to the high speed USB port of the developer board, in the meantime, unplug jumper switch JP7, otherwise, this port cannot be used.

2.6 SIM Card Interface

Developer board includes a complete SIM card socket and interface circuit. The following picture shows the diagram:

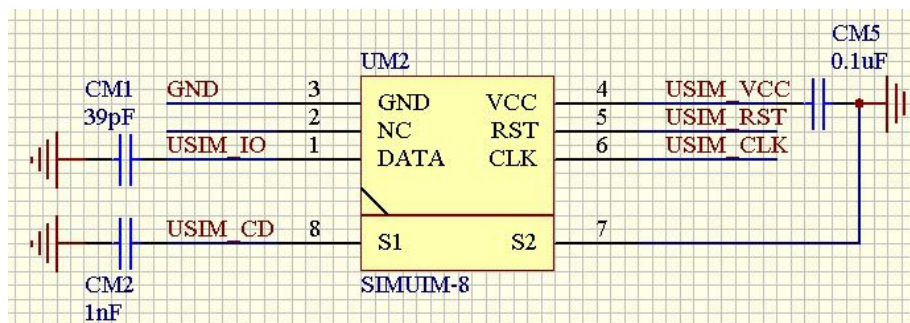


Figure 2-6 SIM Card Circuit

2.7 Audio Interface

Developer board includes two audio interfaces and a speaker interface. The second audio interface and speaker interface are connected to the same audio network of the module, so you cannot use these two interfaces at the same time.

Besides, developer board provides two Audio frequency modulation Options.

- Option 1: use of the CODEC inside the module
Some modules does not support CODEC, please refer to the module hardware user manual.
- Option 2: use the External CODEC in the EVB

| Jumper Switch | Description |
|---------------|---|
| JA6 | Jumper to JA6 select the CODEC inside the module |
| JA7 | Jumper to JA7 select the use of External CODEC in the EVB |
| JA3 | Jumper to JA3 select the use of External CODEC in the EVB |

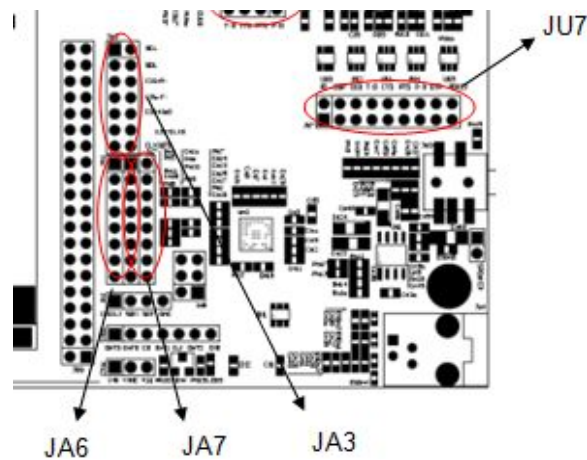


Figure 2-7 Jumpers Locations

2.7.1 Audio1

The handle socket JA1 on the developer board is the first channel audio interface.

| Jumper Switch | Description | |
|---------------|--------------|--|
| JA6 | JA6(5-6pin) | On/off, connect to MIC+ of the headset |
| | JA6(7-8pin) | On/off, connect to MIC- of the headset |
| | JA6(9-10pin) | On/off, connect to EAR- of the headset |

| | | |
|--|---------------|--|
| | JA6(11-12pin) | On/off, connect to EAR+ of the headset |
|--|---------------|--|

As shown in this picture:

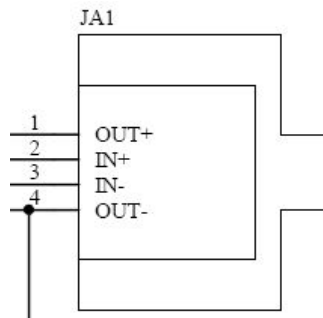


Figure 2-8 Handle Socket JA1

2.7.2 Audio2

The handle socket JA4 on the developer board is the second channel audio interface.

| Jumper Switch | Description | |
|---------------|---------------|--|
| JA4 | JA4(1-2pin) | On/off, connect to AUXI- of the handle |
| | JA4(3-4pin) | On/off, connect to AUXI+ of the handle |
| | JA4(13-14pin) | On/off, connect to AUXO+ of the handle |
| | JA4(15-16pin) | On/off, connect to AUXO- of the handle |

As shown in this picture:

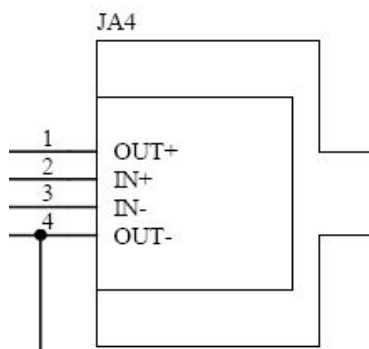


Figure 2-9 Handle Socket JA4

2.7.3 Speaker

The speaker interface and handle socket are connected to the same audio interface of the module, therefore, these two interfaces cannot be used simultaneously.

| Jumper Switch | Description | |
|---------------|-------------|---|
| JA8 | JA8(1-2pin) | On/off, connect to AUXO- of the speaker |

| | |
|-------------|---|
| JA8(3-4pin) | On/off, connect to AUXO+ of the speaker |
| JA8(5-6pin) | On/off, PA power supply |

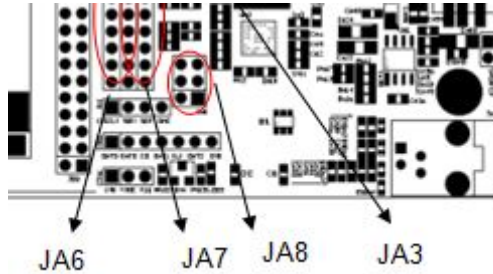


Figure 2-10 Jumpers Locations

2.8 RESET Button

The developer board has a RESET button. The following picture shows the diagram:

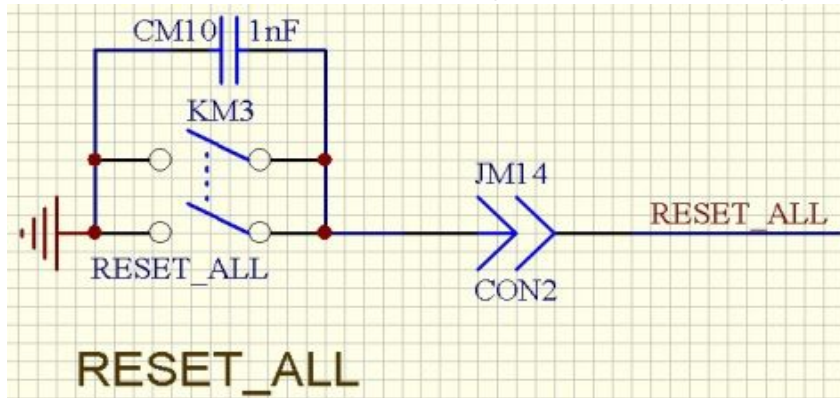


Figure 2-11 RESET Circuit

| Jumper Switch | Description |
|---------------|------------------------------|
| JM14 | Enable/disable, RESET switch |

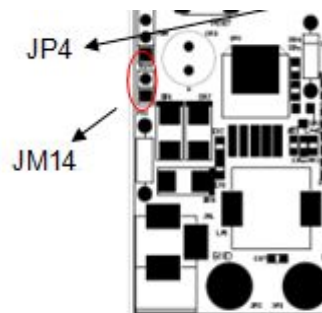


Figure 2-12 Jumpers Locations

2.9 Test Point

For testing and debugging, there are several multi-group test pin on the developer board, please refer to the following table:

| Jumper Switch | Test group | Test PIN |
|---------------|--------------|------------------|
| JA8 | VRTC & ADC | pin 1: VRTC_1V8 |
| | | pin 2: VBACKC |
| | | pin 3: ADC2 |
| | | pin 4: ADC1 |
| JM8 | CLOCK & EINT | pin1: CLKOUT0 |
| | | pin2: CLK32K |
| | | pin3: USIF1_SCLK |
| | | pin4: T_OUT0 |
| | | pin5: EINT2 |
| | | pin6: GND |
| | | pin7: EINT1 |
| JM10 | MMC | pin1: MMC_DAT3 |
| | | pin2: MMC_DAT0 |
| | | pin3: MMC_CD |
| | | pin4: MMC_DAT1 |
| | | pin5: MMC_CLK |
| | | pin6: MMC_DAT2 |
| | | pin7: MMC_CMD |
| JA3 | PCM | pin1: I2C_SCL |
| | | pin3: I2C_SDA |

| | | |
|-----|-------|--------------------------------|
| | | pin5: I2S_RX |
| | | pin7: I2S_TX |
| | | pin9: I2S_WA0 |
| | | pin11: I2S_CLK0 |
| | | pin13: CLKOUT0 |
| | | |
| | | |
| JU1 | HSIC | pin1: USB_VBUS |
| | | pin2: HSIC_USB_DATA |
| | | pin3: HSIC_USB_STRB |
| | | pin4: GND |
| JM4 | MIPI | pin 1: 1V8 |
| | | pin 2: NC |
| | | pin 3: MIPI_RX_DATA / SPI MISO |
| | | pin 4: MIPI_RX_FLG / SPI MOSI |
| | | pin5: MIPI_RX_RDY / SPI Clock |
| | | pin6: MIPI_RX_WAKE |
| | | pin7: MIPI_TX_DATA / SPI_MRDY |
| | | pin8: MIPI_TX_FLG / SPI_SRDY |
| | | pin9: MIPI_TX_RDY |
| | | pin10: MIPI_TX_WAKE |
| | | pin11: GPIO_049 |
| | | pin12: GND |
| JM1 | Other | pin 1: I2SCLK1 |

| | |
|--|----------------|
| | pin 2: USIM_DM |
| | pin 3: USIM_DP |
| | pin 4: DACOUT |

2.10 Default Jumper Switch

The following picture shows the default jumper switch position on the developer board:

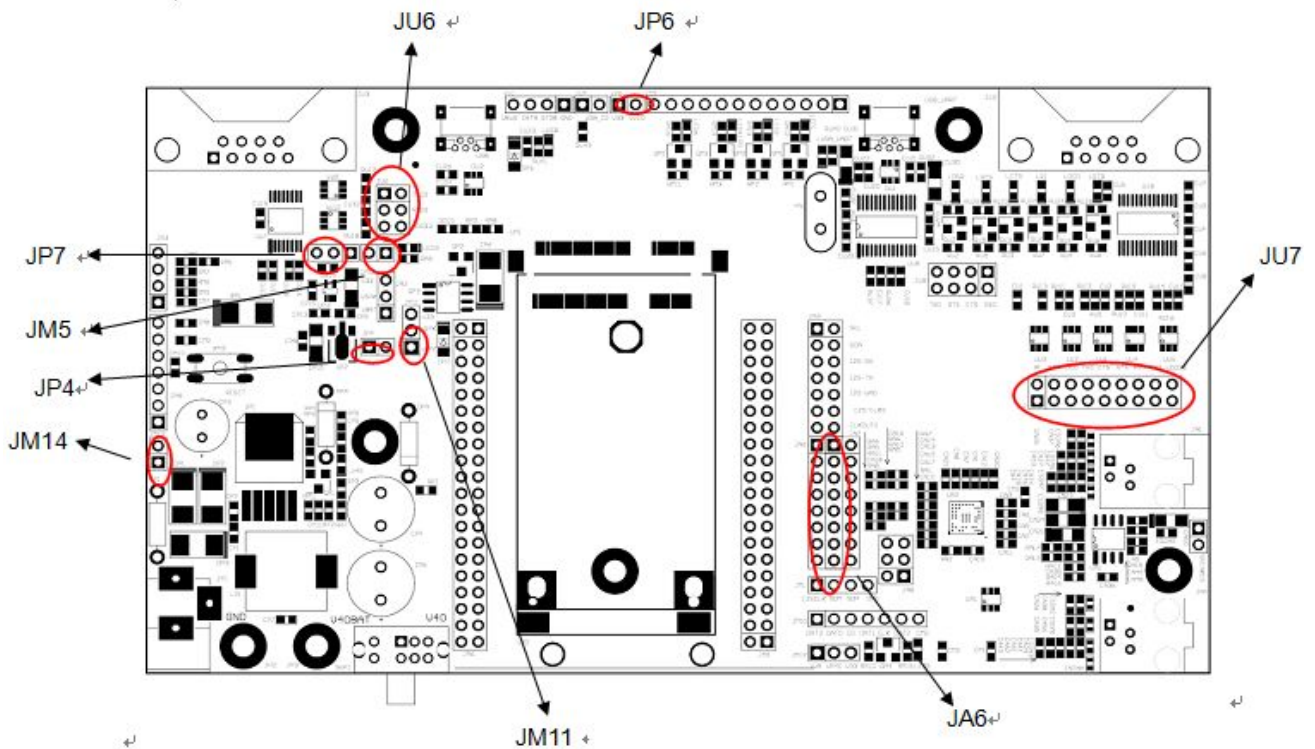


Figure 2-13 Jumpers Location

| No. | Jumper Switch | Quantity | Description |
|-----|------------------|----------|-----------------------------------|
| 1 | JM14 | 1 | RESET connection |
| 2 | JP4 | 1 | 4V switch to 3.3V connection |
| 3 | JM5 | 1 | Module output 1.8V to indicator |
| 4 | JP7 (pin2-pin3) | 1 | Supply 1.8V connection from power |
| 5 | JU6 | 3 | UART2 connection |
| 6 | JP6 | 1 | Power supply for LED indicator |
| 7 | JU7 | 9 | UART1 connection |
| 8 | JA6 | 8 | Audio connection |
| 9 | JM11 (pin2-pin3) | 1 | Power supply for CODEC inside the |

| | | | |
|--|--|--|--------|
| | | | module |
|--|--|--|--------|

3 Adapter Introduction

3.1 Adapter Overview

The adapter is used to connect module and developer board together, here take H330 Adapter (ADP-H330) as an example.

3.2 Adapter Appearance

The following figure shows ADP-H330.



Figure 3-1 ADP-H330 Top View



Figure 3-2 ADP-H330 Bottom View

3.3 Adapter Structure

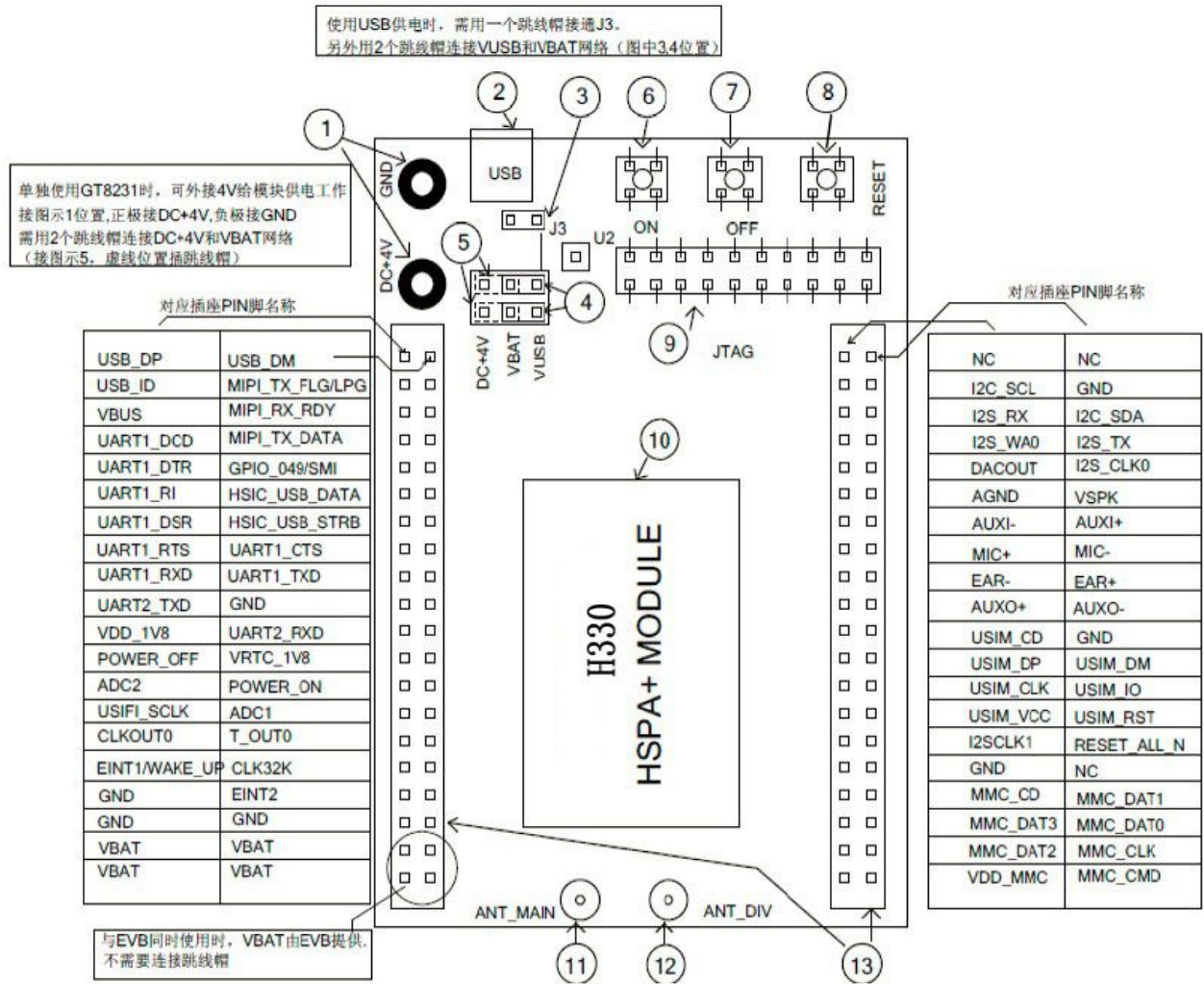


Figure 3-3 ADP-H330

| No. | Type | Description |
|-----|---------------|---|
| 1 | Test point | DC4V interface |
| 2 | USB interface | USB communication interface |
| 3 | Jumper | USB power supply switch control |
| 4 | Jumper | Power selection: connect DC4V and VBAT, DC4V supplies the power |
| 5 | | Power selection: connect DC4V and VBAT, DC4V supplies the power |
| 6 | Button | On button, power on the module |
| 7 | Button | Off button, power off the module |
| 8 | Button | Reset button, reset the module (standard module is power off after reset) |
| 9 | Test point | JTAG test point, used for Debug |

| | | |
|----|-------------------|---|
| 10 | Module | H330 communication module |
| 11 | Antenna interface | Main antenna interface, U.FL connector |
| 12 | Antenna interface | Diversity antenna interface, U.FL connector |
| 13 | Connector | Connector between Adapter and EVB; 80Pin |

Note: If you connect Adapter to the developer board, please remove jumper ③ and ④.

3.4 Adapter Operation

3.4.1 Work with GT8230

1. Adapter doesn't need power supply; the jumper of adapter can be removed.
2. Please notice the direction of adapter and developer board.
3. Adapter 80 Pin corresponds to developer board 80 Pin socket.

Note: Misplace may cause damage to the module.

4. USIM card can be installed at the bottom of adapter or developer board GT8230.

Note: Do not insert the SIM card at the same time, it may works abnormal.

3.4.2 Only Adapter

1. Use external DC+4V power first, jumpers connect to 5 pin (as shown in Figure3-3), press Power ON.
2. If you want to use USB to supply the power, please connect the jumpers in 3 and 4.

Note: The load capacity of USB port must be 5V, 700mA or above, otherwise the module maybe abnormal.

3.5 Adapter Installation

Adapter installation:



Figure 3-4 Adapter (H330 Adapter) Installation Diagram

Note: Please pay attention to the direction of Adapter to avoid damage.

MINI PCI Installation:

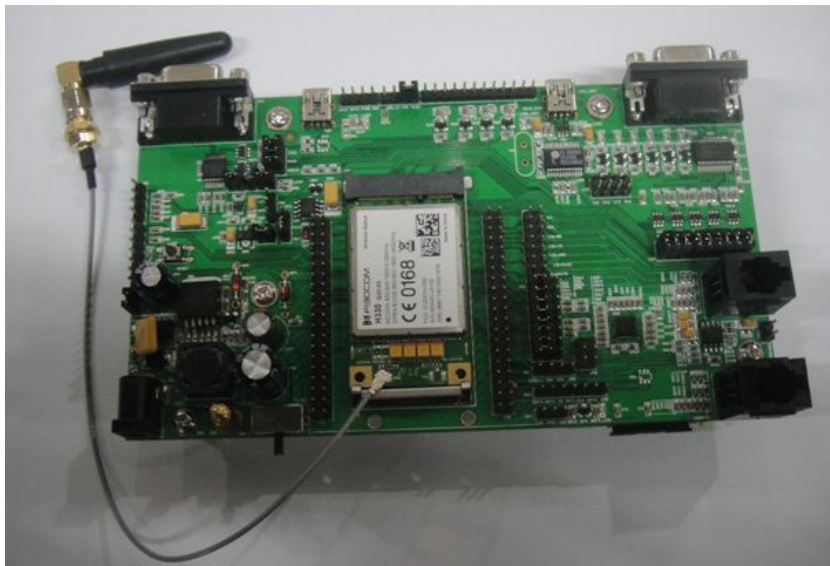


Figure 3-5 H330 Mini PCIe Installation Diagram

Note: Before install Mini PCIe, please remove the J5 screw on the developer board, otherwise it cannot be installed.

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